Center Independent Research & Development: GSFC IRAD

Balloon Platform for Ultra-Low-Background Spectroscopy

Completed Technology Project (2011 - 2012)

Project Introduction

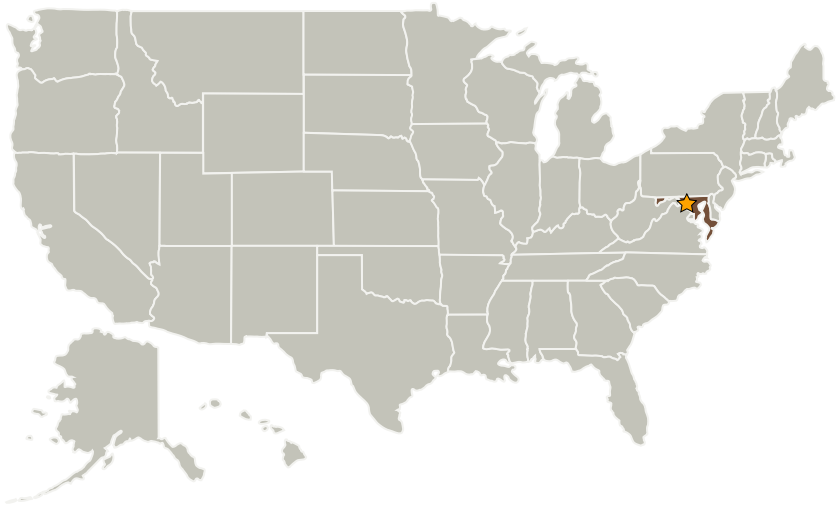
Far-infrared astronomical observations are limited by foreground emission originating within the atmosphere or instrument optics. A new observing technique combining several elements can reduce foreground emission by a factor of 1000 or more compared to current state-of-the-art observations from ground-based or airborne platforms. The increased sensitivity improves mapping speed by a factor of 100,000 to allow performance comparable to space mission from low-cost suborbital platforms.

Task includes: Thermal/mechanical design study

Anticipated Benefits

Technology is aimed at a future balloon-borne spectrometer operating at wavelengths from 50 to 1000 microns. Reducing foreground emission by factors of 1000 or more reduces the necessary integration time and improves mapping speed by a factor of 100,000.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland

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Primary U.S. Work Locations

Maryland

Images

Balloon Platform for Ultra-Low-Background Spectroscopy Project
Balloon Platform for Ultra-Low-Background Spectroscopy Project *(https://techport.nasa.gov/image/4081)*

Project Website:

http://sciences.gsfc.nasa.gov/sed/

Organizational Responsibility

Responsible Mission Directorate:

Mission Support Directorate (MSD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Independent Research & Development: GSFC IRAD

Project Management

Program Manager:

Peter M Hughes

Project Manager:

Stanley D Hunter

Principal Investigator:

Alan J Kogut

Co-Investigators:

Donald C Wegel
Bryan L James
Xiaoyi Li

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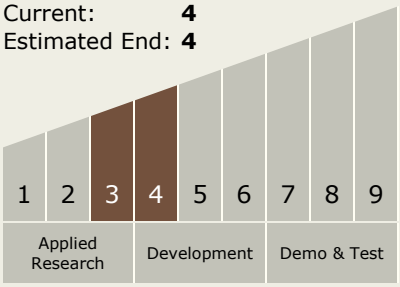
Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves